

# Altechna



Mantas Kulnickas  
Key Account Manager

Increased LIDT Transmissive Optics  
Using Ion Precleaning Technology

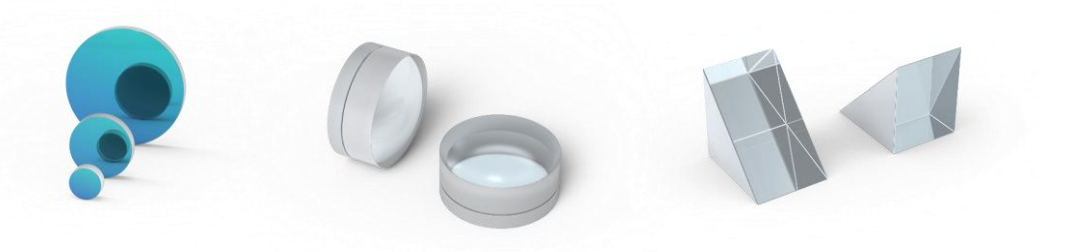
8 November 2023. 16:00 - 17:00 CET

EPIC Members  
New Product Release



# Product Lines

Laser Optics ~50%

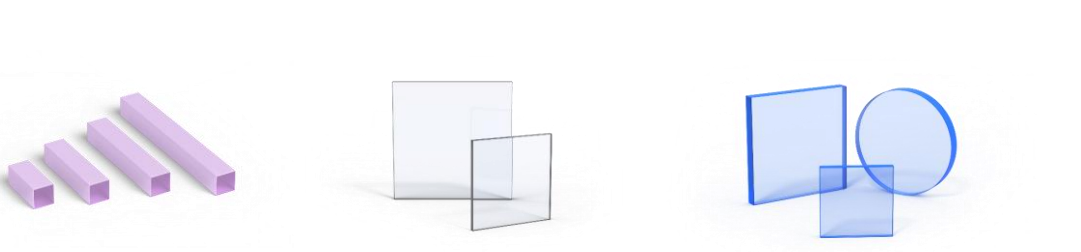


**Dielectric Coated Optics**

**Lenses**

**Prisms**

Laser Crystals ~10%



**Laser Crystals**

**Nonlinear Crystals**

**Passive Q-Switch Crystals**

Polarization Optics ~15%



**Waveplates**

**Thin Film Polarizers**

**Polarizing Cubes**

Assemblies ~25%



**Standard**

**Custom**

# Optomechanical assemblies and subassemblies

## Staff



Dedicated people for optical, mechanical designs and manufacturing

## Infrastructure



A new 100 sq. m ISO 6 clean room area, with all necessary equipment

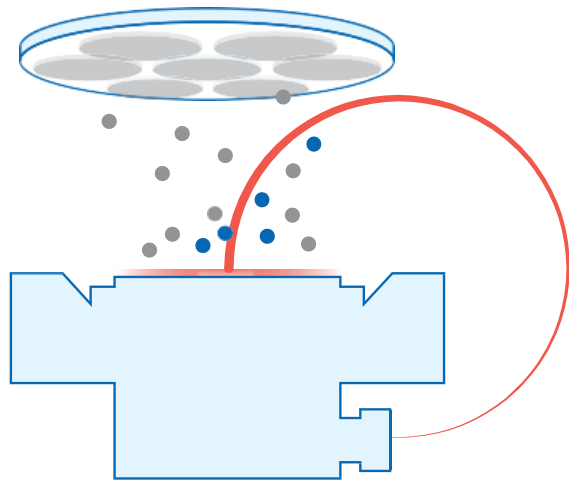
## Quality



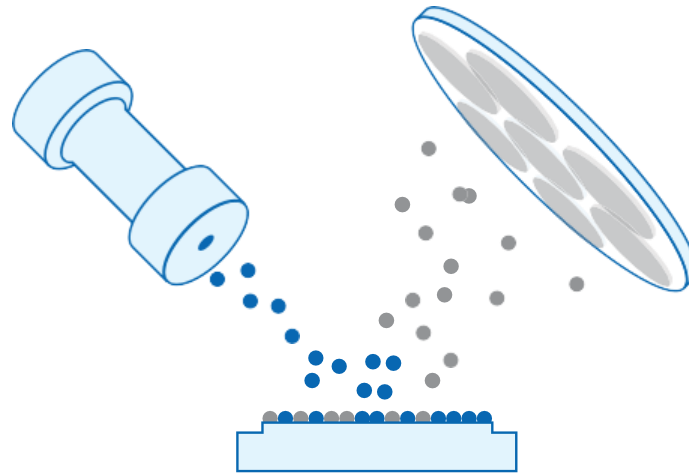
Full traceability of all BOM components, complete in-house metrology during all manufacturing phases



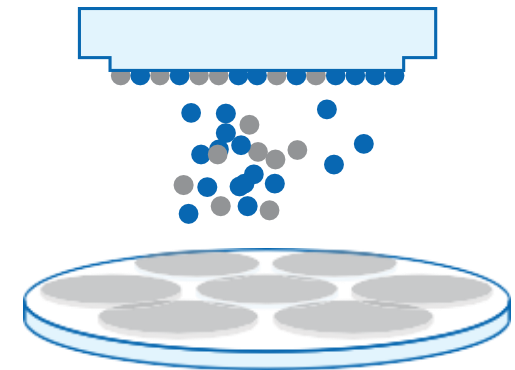
## Main PVD coating technologies in the market



**Ion assisted e-beam deposition**



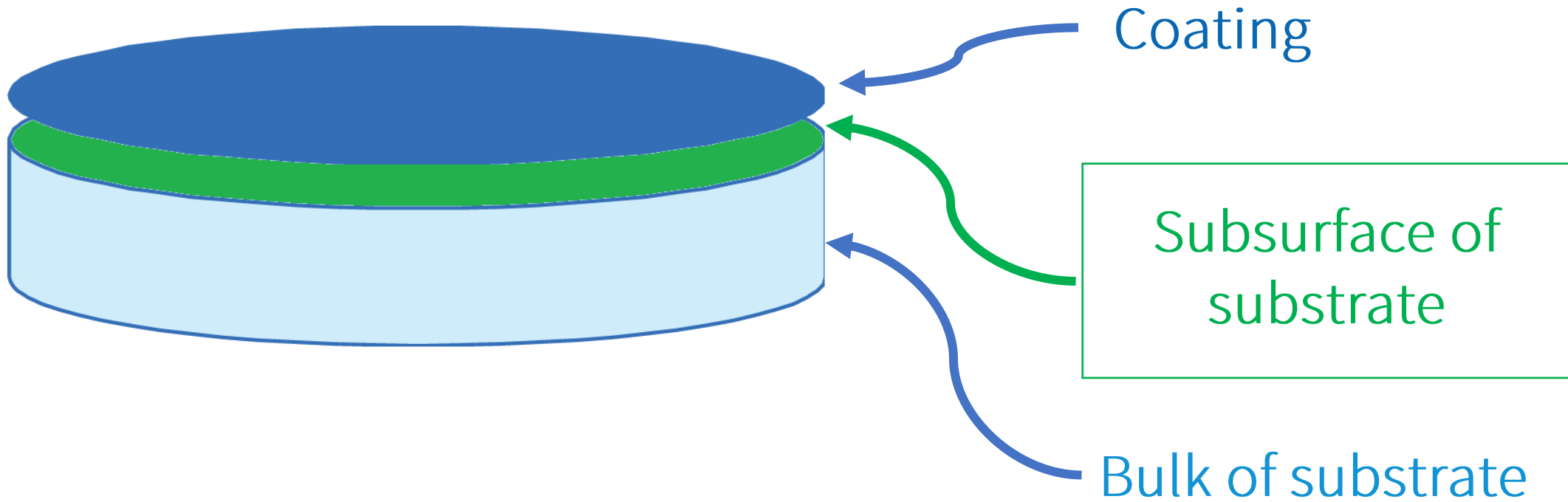
**Ion Beam Sputtering**



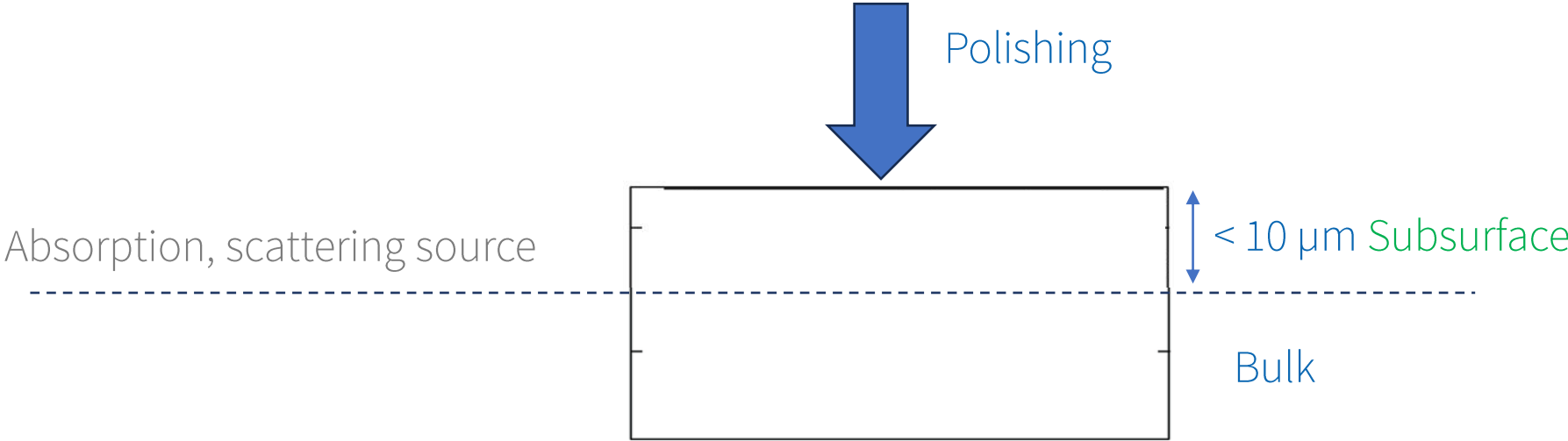
**Magnetron Sputtering**

Altechna has all of them in-house

# Main structure units of optical component

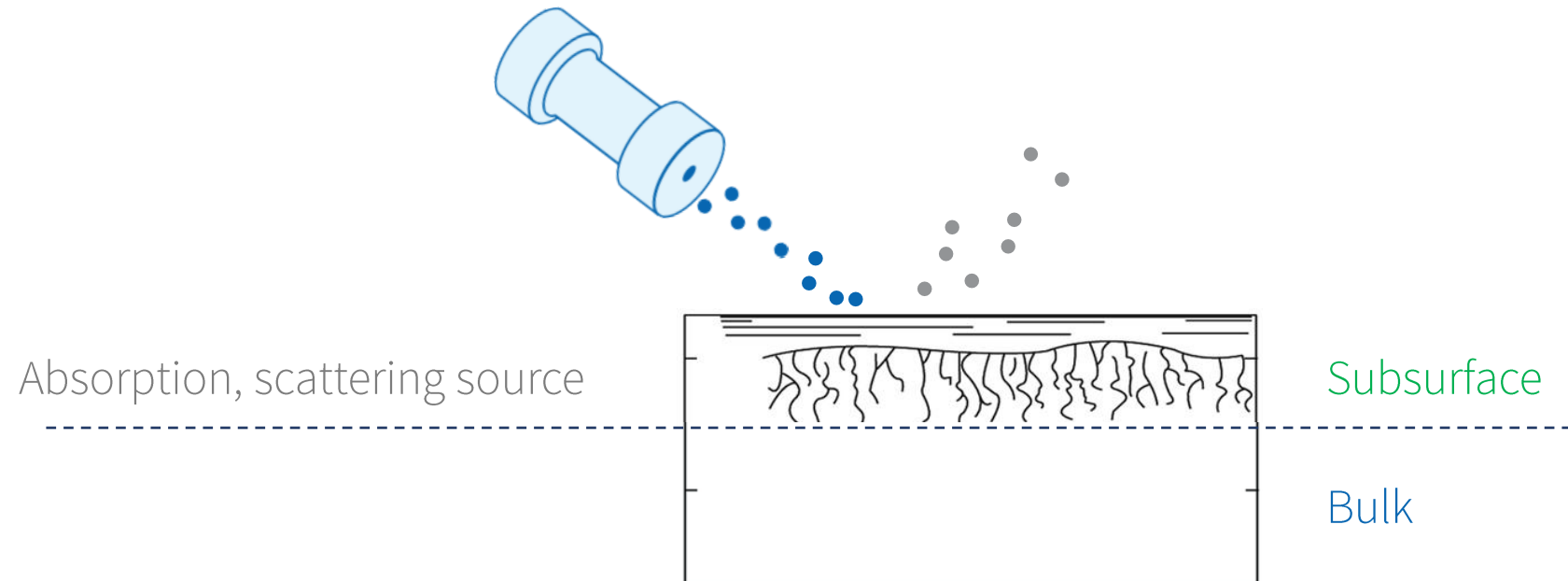


# Subsurface damage (The Beilby layer)



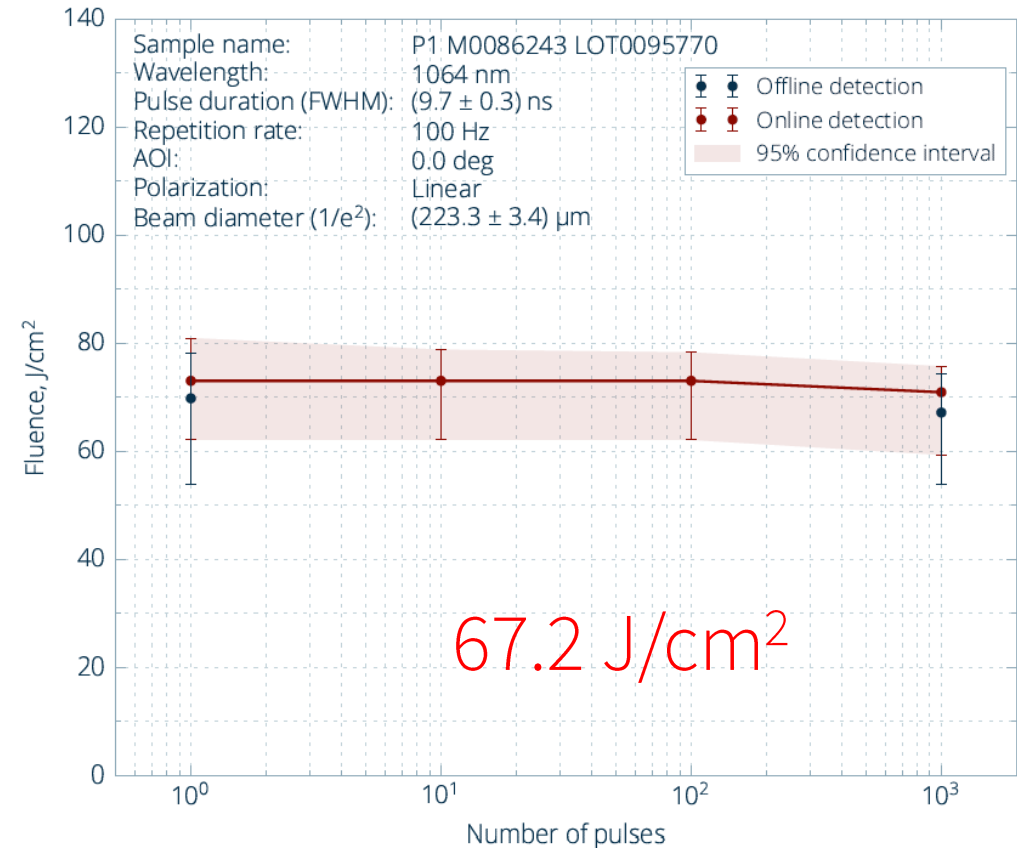
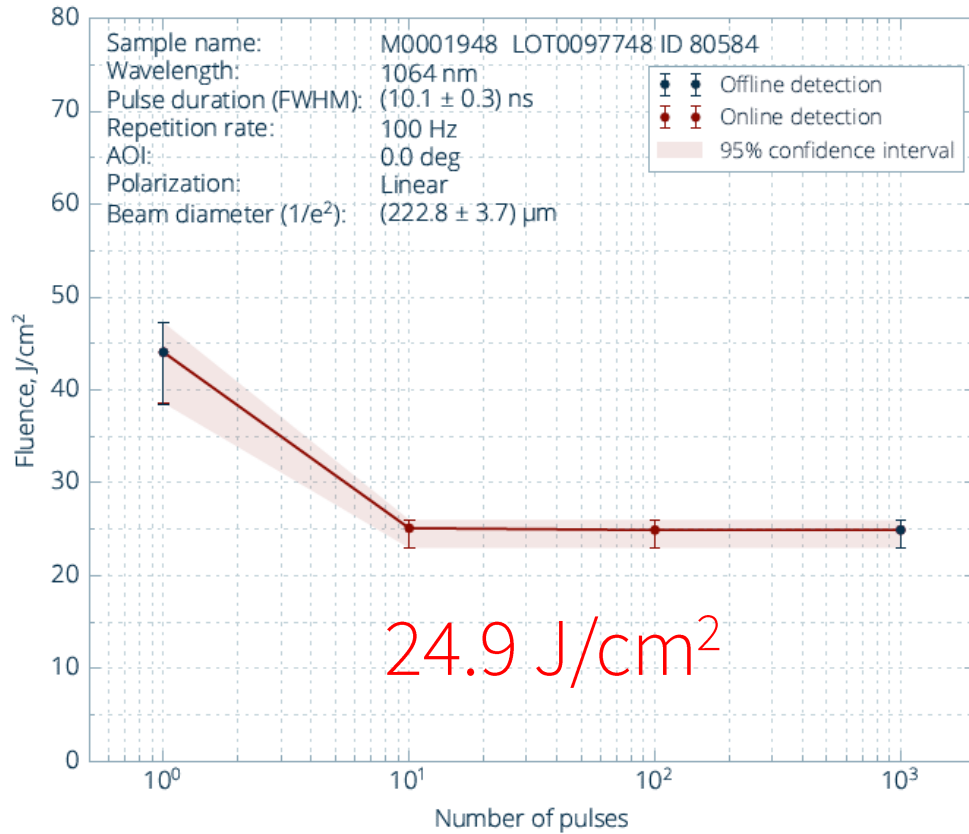


# Ion precleaning technology



# Ion precleaning technology

Protective window:  $R < 0.1\%$  @ 1080 nm



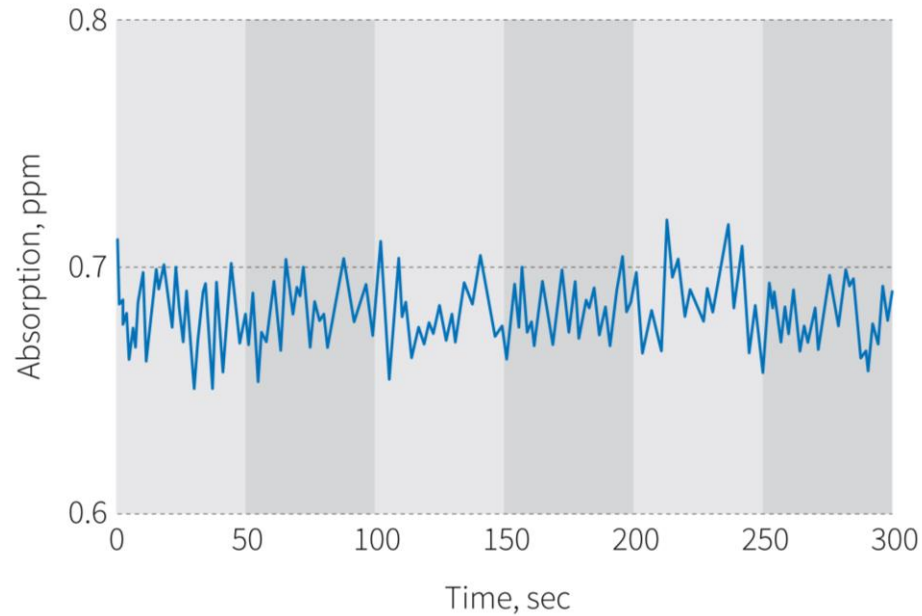
@ 1064 nm, ~10 ns, 100 Hz



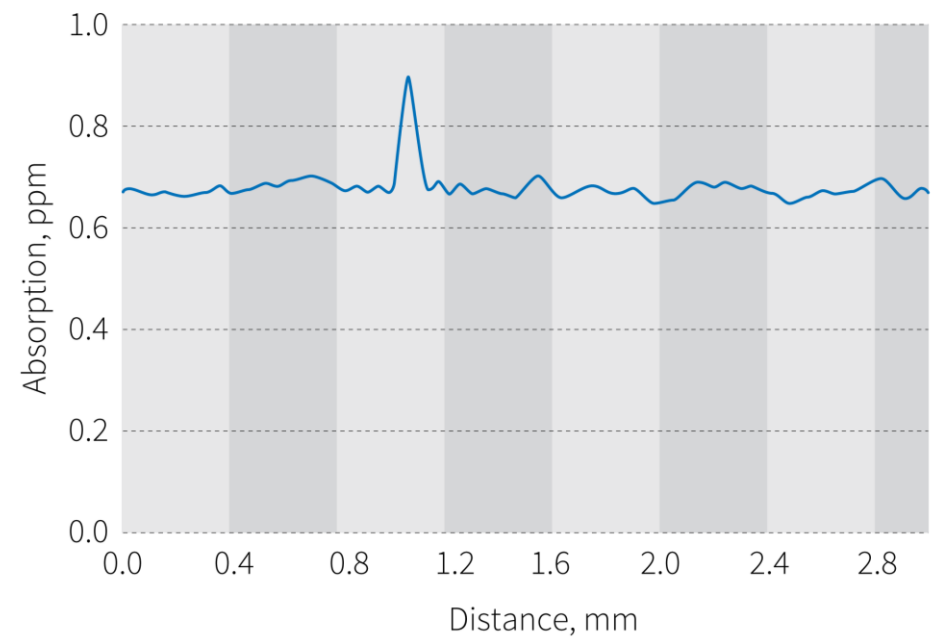
# Ion precleaning technology

Protective window:  $R < 0.1\%$  @ 1080 nm

Time scan



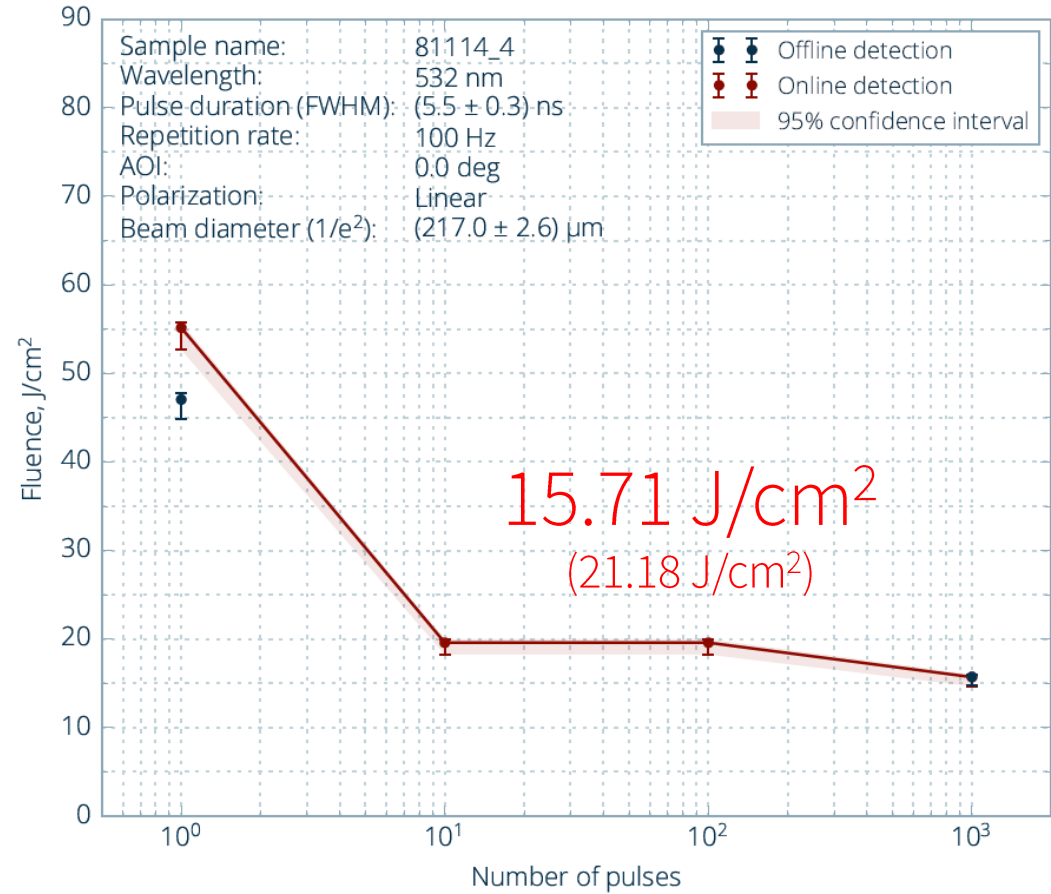
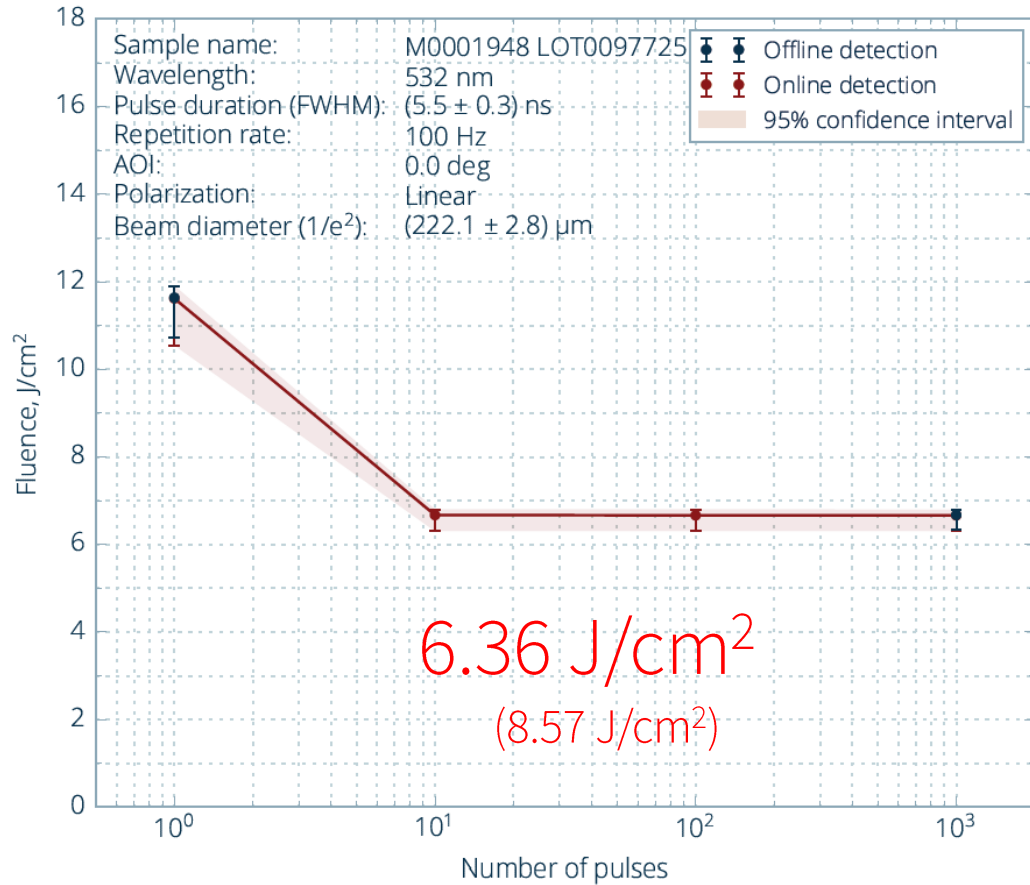
Scan over surface



Absorption after ion precleaning remains:  $< 1$  ppm

# Ion precleaning technology

AR (R<0.3%) @ 532 nm + AR (R<0.2%) @ 1064 nm + AR (R<2.5%) @ 694 nm, AOI 0°



@ 532 nm, 5.5 ns, 100 Hz

(Scaled to 10 ns)



Let's discuss further

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